

CLAIMS

1. A gene transfer vector containing a virus envelope.
- 5 2. A gene transfer vector according to claim 1, wherein the virus is derived from a wild-type virus or a recombinant-type virus.
3. A gene transfer vector according to claim 1 or 2,
10 wherein the virus is derived from a virus belonging to a family selected from the group consisting of:
Retroviridae, Togaviridae, Coronaviridae,
Flaviviridae, Paramyxoviridae, Orthomyxoviridae,
Bunyaviridae, Rhabdoviridae, Poxviridae,
15 Herpesviridae, Baculoviridae, and Hepadnaviridae.
4. A gene transfer vector according to claim 3, wherein the virus is HVJ.
- 20 5. A gene transfer vector according to any one of claims 1 to 4, wherein the gene transfer vector is prepared by a method which comprises the steps of:
mixing the virus with an exogenous gene; and
freezing and thawing the mixture two or more times.
- 25 6. A gene transfer vector according to any one of claims 1 to 4, wherein the vector is prepared by a method which comprises a step of mixing the virus with an exogenous gene in the presence of a detergent.
- 30 7. A gene transfer vector according to claim 5 or 6, wherein the method further comprises a step of inactivating the virus.

8. A gene transfer vector according to claim 7, wherein the detergent is selected from the group consisting of octylglucoside, Triton-X100, CHAPS and NP-40.

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9. A gene transfer vector according to claim 8, wherein the detergent is octylglucoside.

10. A gene transfer vector according to any one of claims 1 to 9, wherein the method further comprises a step of adding protamine sulfate to the exogenous gene.

11. A gene transfer vector according to any one of claims 1 to 10 for introducing a gene into animal in vivo tissue.

12. A gene transfer vector according to claim 11, wherein the tissue is selected from the group consisting of: the liver, skeletal muscles, the uterus, brain, eyes, carotid arteries, skin, blood vessels, the lung, the heart, kidneys, the spleen, cancer tissue, nerves, B lymphocytes, and respiratory tract tissue.

13. A pharmaceutical composition for gene therapy which comprises the gene transfer vector according to claims 1 to 12.

14. A kit for screening gene libraries, which comprises the gene transfer vector according to claims 1 to 12.

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15. A method for preparing a gene transfer vector comprising a virus envelope for gene transfer, wherein the method comprises the steps of:

mixing the virus with an exogenous gene; and
freezing and thawing the mixture two or more times.

16. A method for preparing a gene transfer vector
5 comprising a virus envelope for gene transfer, wherein
the method comprises the steps of:

mixing the virus with an exogenous gene in the presence
of a detergent.

10 17. A method according to claim 15 or 16, further
comprising the steps of inactivating the virus.

18. A method for introducing a gene into isolated animal
tissue, wherein the method comprises the steps of:

15 preparing a gene transfer vector according to any one
of claims 1 to 12, containing a desired exogenous gene;
and

introducing a gene into the isolated animal tissue
via the gene transfer vector.

20 19. A method for introducing an exogenous gene into a
suspended cell, wherein the method comprises the steps
of:

mixing the suspended cell with the gene transfer
25 vector according to any one of claims 1 to 12 in the
presence of protamine sulfate; and
centrifuging the mixture.